# MASSACHUSETTS MOSQUITO CONTROL ANNUAL OPERATIONS REPORT

2014 Year of Report Date of Report: 1-6-15

Project/District Name: Plymouth County Mosquito Control Project

Address: Box 72 142 R Pembroke Street

City/Town: Kingston Zip: 02364

Phone: 781-585-5450 Fax: 781-582-1276

E-mail: atexeira@plymouthmosquito.org

Report prepared by: Anthony Texeira

NPDES permit no. MAG 87A025

If you have a mission statement, please include it here: to maintain an efficient, economical mosquito control operation that will provide the best results possible, be consistent with all ecological aspects and consider the best interests of member communities.

# ORGANIZATION SETUP:

Please list your Commissioner's names:

John Kenny - Chairman Cathy Drinan Kimberly King Michael Valenti

Please list the Supt./Director's name: Anthony Texeira

Please list the Supt./Director's contact phone number: 781-585-5450

Please list your Asst. Supt./Asst. Director's name:

Do you have a website? Please select If yes, please list the web address here: http://www.plymouthmosquito.org

Please list your staffing levels for the year of this report:

Full time: 12 Part time: 2 Seasonal: 5

Other: (please describe)

Please break these down into the following areas:

Administrative staff: 3 Field staff: 16 Please check off all that apply, and list employee name(s) next to each category:  Public relations Daniel Daly Information technology Maura Orrell-Charles Entomologist Ellen Bidlack Wetland Scientist Biologist Maura Orrell-Charles Education Daniel Daly, Ellen Bidlack Laboratory Operations Anthony Texeira, Jo Ann Fawcett, Steve Gillette Facilities Anthony Texeira, Steve Gillette Other (please list) Pilot, Survey Technition - Ross Rossetti, Excavator operator - Brian Callahan, Excavator operator, Brandon Gillett, Field Technicians - Dan Cabral, Richard Goodwin, Christoper Hanna, Matt McPhee, and George Rego
For the year of this report, we maintained: 19 vehicles 1 modified wetland equipment (list type) Link-Belt excavator 8 ULV sprayers (list type) 14 Larval control equipment (list type) 2 Hydraulic units, 2 backpack sprayers, 10 pump Other (please be specific): 1 Link-Belt excavator, 1 John Deere G35 mini excavator, 1 Cessna AG Wagon w/boom nozzle & grandular spreader
Comments:
How many cities & towns in your service area? 28

Please list: Abington, Bridgewater, Brockton, Carver, Cohasset, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Lakeville, Marion,

Marshfield, Mattapoisett, Middleboro, Norwell, Pembroke, Plymouth, Plympton,

Rochester, Rockland, Scituate, Wareham, West Bridgewater, Whitman

\*Please attach a link to a map of your service area if possible. http://www.plymouthmosquito.org/map.htm

#### **INTEGRATED PEST MANAGEMENT (IPM):**

DEFINITION: a comprehensive strategy of pest control whose major objective is to achieve desired levels of pest control in an environmentally responsible manner by combining multiple pest control measures to reduce the need for reliance on chemical pesticides; more specifically, a combination of pest controls which addresses conditions that support pests and may include, but is not limited to, the use of monitoring techniques to determine immediate and ongoing need for pest control, increased sanitation, physical barrier methods, the use of

natural pest enemies and a judicious use of lowest risk pesticides when necessary.

Please check off all of the services that you currently provide to your member cities and towns as part of your IPM program; details of these services are in the next sections.

$\boxtimes$	Larval mosquito control
$\boxtimes$	Adult mosquito control
$\boxtimes$	Source reduction
$\boxtimes$	Ditch maintenance
$\boxtimes$	Open Marsh Water Management
$\boxtimes$	Adult mosquito surveillance
$\boxtimes$	<b>Education, Outreach &amp; Public education</b>
$\boxtimes$	Research
	Other (please list):
	-
Co	mments:

#### LARVAL MOSQUITO CONTROL:

Do you have a larval mosquito suppression program? Yes

If yes, please describe the purpose of this program: The larval suppression program is one of our most effective methods to reduce the number of biting mosquitoes by preventing mosquitoes from maturing into adults, through spring aerial laviciding over 10,000 acres of wetlands, site inspection and treating breeding sites by hand or hydraulic spraying and catch base treatment, the Project hopes to enhance the quality of life of our residents by reducing the number of mosquito biting mosquitoes hatching out.

Please give the time frame for this program: spring and summer

Describe the areas that this program is used: a variety of fresh water wetlands and salt marshes breeding siteswithin the district

Do yo	ou use:
$\boxtimes$ G	round applied (includes hand, portable and/or backpack)
☐ He	elicopter applications
$\boxtimes$ O	ther (please list): Fixed Wing Airplane application
Com	ments:

What products do you use in – (please use product name and EPA#)

**Wetlands:** Vectobac 12AS 73049-38, Vectolex CG 73049-20, Summit Briquets 6218-47, Altosid XR 2724-421, 4 Star Briquets 83362-3, Vectobac CG 73049-19

Catch basins: Altosid Pellets 2724-448, 4 Star Briquets 83362-3, 4 Star WSP 85685-3,

Altosid XR 2724-421

**Containers:** 

Other (please list):

Please list the rates of application for the areas listed above:

Wetlands: Vectobac 12 AS 1 pint per acre by airplane, Summit Briquet 1 briquet for

100 sq ft., Vectobac CG 5-10 lbs / acre

Catch basins: Altosid pellets 7 gramms per basin, Vectolex CG 1 pouch per basin, 4

Star WSP 1 pouch per basin, 4 Star Briquet 1 briquet per basin

Containers: 1 BTi Briquet for 100 sq ft

Other:

What is your trigger for larviciding operations? (check all that apply)

$\boxtimes$	Larval	dip	counts -	please	list	trigger	for	application:	+
$\triangle$	Laivai	uip	Counts -	piease	ΠSι	uiggei	101	application.	7

Historical records

Best professional judgment

Comments: \_\_\_\_

#### **ADULT MOSQUITO CONTROL:**

Do you have an adult mosquito suppression program? Yes

If yes, please describe the purpose of this program: The goal of our program is to reduce the number of biting mosquitoes to protect human health and improve the quality of life of our residents. The Project takes residential, business and town officials requests for adulticiding with ULV truck mounted sprayers

Please give the time frame for this program: May - October (end date depends on virus activity and weather conditions

Describe the areas that this program is used: Project wide PCMCP accepts requests for adult mosquito control from residents, buisnesses and town officals within the 28 town district.

<sup>\*</sup>Please attach a link to maps of treatment areas if possible. http://www.plymouthmosquito.org/map.htm

Do you use:  Truck applications  Portable applications  Aerial applications  Other (please list):  Comments:
Please list the names of the products used with EPA #:  1). Duet 1021-1795-8329  2).  3).  4).  5).  6).
Please list your application rates for each product: 1). Duet 1021-1795-8329 .062 oz. per acre 2). 3). 4). 5). 6).
Please describe the maximum amounts or frequency used in a particular time frame such as season and areas
Each resident household has a maximum of 8 treatments per season
What is your trigger for adulticiding operations? (check all that apply)
<ul> <li>☑ Landing rates - please list trigger for application exceeds 1 per night</li> <li>☑ Light trap data - please list trigger for application exceeds 5 per night</li> <li>☑ Complaint calls - please list trigger for application exceeds 2 per geographical area</li> <li>☑ Arbovirus data</li> <li>☑ Best professional judgment</li> </ul>
Comments:
*Please attach a link to maps of treatment areas if possible. http://www.plymouthmosquito.org/map.htm

# SOURCE REDUCTION

Do you perform source reduction methods such as tire/container removal? Yes

If yes, please describe your program: Our source reduction program is comprised of our ditch maintenance program, OMWM and education. We often inspect properties and offer advice to landowners regarding actions they can take to reduce the amount of mosquito production on their property.
What time frame during the year is this method employed? Throughout the year
Comments:
DITCH MAINTENANCE
Do you have a ditch maintenance program? Yes
Please check all that apply:  ☑ Inland/freshwater ☑ Saltmarsh
If yes, please describe: Hand and Mechanized Equipment
Please check off all that apply INLAND DITCH MAINTENANCE:
<ul> <li>☐ Hand tools</li> <li>☐ Mechanized equipment</li> <li>☐ Other (please list):</li> <li>Comments:</li> </ul>
Please check off all that apply SALTMARSH DITCH MAINTENANCE:
<ul> <li>☐ Hand cleaning</li> <li>☐ Mechanized cleaning</li> <li>☐ Other (please list):</li> <li>Comments:</li> </ul>
Please give an estimate of cumulative length of ditches maintained from the list above <b>INLAND</b> :
Hand cleaning 47,770 Mechanized cleaning 7,005 Other (please list):
Comments:

Please give an estimate of cumulative length of ditches maintained from the list above **SALTMARSH**:

Hand cleaning 722 Mechanized cleaning 12,245 Other (please list):

What time frame during the year is this method employed? Throughout the year

Comments: \_\_\_\_

#### **MONITORING (Measures of Efficacy)**

Please describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands: Pre and Post application
Larvicide – catch basins: prior to application
Larvicide-hand/small area Prior to application

**Ground ULV Adulticide:** Periodic landing rate checks and trapping data

Source Reduction: Pre and Post implementation
Open Marsh Water Management: Pre and Post implementation

Other (please list):

Provide or list standard steps, criterion, or protocols regarding the documentation of efficacy, (pre and post data) and resistance testing (if any): Per established Mass. Best Management Practice Standards and State Reclamation and Mosquito Board G.E.I.R.

#### **OPEN MARSH WATER MANAGEMENT**

Do you have an OMWM program? Yes

If yes, please describe: We have had an OMWM program on and off since the late 1980's. We currently have permits from the Army Corps of Engineers until 2015.

Please give an estimate of total square feet or acreage: The OMWM site is on a marsh that is less than 30 acres in size. The actual area of disturbance is estimated to be 7,000sq ft..

What time frame during the year is this method employed? Fall and Winter

<sup>\*</sup>Please attach a link to maps of ditch maintenance areas if possible.

Comments:				
*Please attach a link to maps of OMWM are	as if possible.			
ADULT MOSQUITO SURVEILLANCE				
Do you have an adult mosquito surveillance pr	rogram? Yes			
Please list the number (not location) of MDPH regularly at 5 locations and ran 6 supplementa	• •			
Please check off all the types of surveillance the	nat apply to your program:			
$\  \  \  \  \  \  \  \  \  \  \  \  \  $	anopy anopy anopy anopy anopy			
Other (please describe):				
Please describe the purpose of this program: to monitor the mosquitoes for diseases, to de decide where we can better focus our larvacid	etermine general population levels and to			
Do you maintain long-term trap sites in any of	your areas? Yes			
If yes, please describe how you chose these long-term sites. We maintain a system of NJ traps that have been at the same locations for numerous years. In cooperation with DPH we have in recent years begun to maintain our own sites for disease surveillance. Locations were chosen using a variety of factors including disease history, neighboring wetlands and location of DPH traps.				
Please check off the species of concern in you	ır service area:			
<ul> <li>Ae. albopictus</li> <li>Ae. cinereus</li> <li>Ae. vexans</li> <li>An. punctipennis</li> <li>An. quadrimaculatus</li> <li>Cq. perturbans</li> <li>Cx. pipiens</li> </ul>	<ul> <li>☐ Cx. restuans</li> <li>☐ Cx. salinarius</li> <li>☐ Cs. melanura</li> <li>☐ Cs. morsitans</li> <li>☐ Oc. abserratus</li> <li>☐ Oc. canadensis</li> <li>☐ Oc. cantator</li> </ul>			

□ Oc. excrucians □ Oc. taeniorhynchus   □ Oc. fitchii □ Oc. triseriatus   □ Oc. j. japonicus □ Oc. trivittatus   □ Oc. punctor □ Ps. ferox   □ Oc. sollicitans □ Ur. sapphirina   □ Oc. stimulans				
☑ Other (please list):				
Do you participate in the MDPH Arboviral Surveillance program? Yes				
How many pools do you submit weekly on average? 60				
Please check off the arboviruses found in your area in the past 5 years:				
<ul> <li></li></ul>				
Did the above listed diseases cause human or horse illnesses? No				
Please explain:				
At what arbovirus risk level did the year begin in your area? (If more than one please list)				
WNV: We started at low risk for all of our district. EEE: all towns were at low risk except West Bridgewater, Middleborough, Rockland, Hingham,Whitman and Hanson at moderate risk.				
At what arbovirus risk level did the year end in your area? (If more than one please list)				
WNV: All towns were at "low risk".				
EEE: "Moderate Risk": Kingston, Lakeville, Rochester, West Bridgewater,				
Middleborough, Rockland, Hingham, Whitman Hanson and Bridgewater all other towns				
were at "low risk"				
What time frame during the year is this method employed? We started trapping at the end of May and surveillance continued until September 19, 2014.				
Comments:				
*Please attach a link to maps of surveillance areas if possible.				

#### **EDUCATION, OUTREACH & PUBLIC RELATIONS**

Do you have an education/public outreach program program? Yes

If yes, please describe: Throughout the year, the Projects seeks opportunities to educate the public. When using the words "the public", we include in the meaning all residents of the county, students, seniors, families, and the general public. We do not wait for people to contact the Project, we reach out throughout the county. Examples:

- Speaking at councils on aging;
- School presentations;

Please check off all that apply:

- Board of Health sponsored Health Fairs;
- Connecting with health agents in each member community;
- Speaking on local radio news programs;
- Local access cable programs with that community's health agent;
- Press releases through local newspapers and their related websites (such as the Wicked Local group);
- Speaking at local mosquito awareness forums;
- Continually updating the Project's website to ensure the most current and accurate information is available to the Project communities.
- Contacting DCR reservations officials to ask for their support in educating their visitors on mosquito virus threat levels and suggested actions (DPH recommended).

School based program
Website
PR brochures/handouts
Community events
Science fairs
Meeting presentations
Other (please describe): Presentations to councils on aging and to residents of assited living communities. Speaking on WATD radio in Marshfield, speaking to seniors in Kingston, Plymouth, Pembroke, Hanson, and others; and meeting with DCR reservation management for Hingham, Hull, Abington (and the islands). This list was only a partial overview intended to offer some specific examples.

Please give an estimate of attendance/participants in this program: The number of participants vary from as few a six to fifty.

Please list some events you participated in for the year of this report: Presentations to schools, councils on aging, residents of assisted living communities, and for local access cable. The Project sponsored a poster contest which was open to all young people (grades k - 12) who live in Project communities. The Project also issues press

releases when appropriate to local media, including radio, newspapers and their related websites

What time frame during the year is this method employed? throughout the year

Have you performed any research projects, efficacy, bottle assays, etc.? Yes

If yes, please elaborate on your research projects:

Are you involved in any collaboration with academia, industry, environmental groups, etc.? Yes

If yes, please elaborate on your collaborations this past year:

Please provide a list of technical reports, white/grey papers, publication in journal or trade magazines, etc.

Does your staff participate in educational opportunities? Yes

If yes, please list the training and education your staff received this year: Applicators License training, NMCA Annual Meeting, Clarke & UNIVAR Spring Training, NMCA Field Day, Native Pollinators Field Day, DOT DigSafe Training, OSAH SDS Training.

Please list the certifications and degrees held by your staff: Pilot/Survey Technician - Ross Rossetti, U.S. Commercial Airline Certificate, Commercial Aerial Certification 34,54, Commercial applicators Lic. B.S. Aviation Science, Excavator operator - Brian Callahan Commercial Certification 47, CDL, Hoisting License, - Excavator Operator - Brandon Gillett Commercial Certification 47, Hoisting License, Field Technicians: Dan Cabral Applicator license, Hoisting License- Richard Goodwin Commercial Certification 47, Hoisting License - Christopher Hanna Commercial Certification 47, Hoisting License - Ellen Bidlack B.S., M.A., Commercial applicators license, CDL, Hoisting License - Ellen Bidlack B.S., M.A., Commercial applicators Certificate 47 - Anthony Texeira B.S., M.A.T. Commercial Certificate 47 - Project Coordinator Jo Ann Fawcett Associate in Bus. - General Foreman Steve Gillett Commercial Certification 47, CDL, Hoisting License, Dan Daly BS, M Ed., CAGS. Maura Orrell-Charles B.S., M.S., Microsoft Certified System Administrator, Applicators License.

Comments:	
Comments.	

#### **BIOLOGICAL CONTROL EFFORTS**

Do you have a biological control program? No

If yes, please describe:

Please describe your capabilities in these areas: Our goal is to use computers and GIS technology to improve record keeping, efficiency and communication. As a result these tools have been used in a variety of ways to meet these goals. Over the past 10 years our service requests have been put directly into a database. We have been using this Service Request system since 2009. The system decreases data entry errors and speeds handling of the requests. We have geocoded two years of service requests to help us identify areas where we can improve our larviciding. Other ways we have been using technology includes installing PDAs and GPS units in all our trucks with ULV sprayers. This system tracks when and where the sprayer was used as well as other information. PCMCP's also uses GIS technology to map our trap sites and help determine trap placement breeding sites and sensitive habitats. We are developing a system using GIS and computer databases to improve tracking of our hand larviciding sites and ditch maintainace.

Please describe your current GIS abilities: Intermediate

Give details if possible on your GIS abilities:

Please describe any changes/enhancements in this area from the previous year:

Com	ments:	
00111	monto.	

#### **REVENUES & EXPENDITURES**

Please give a concise statement of revenues & expenditures for the prior fiscal year ending June 30.

FY14 PCMCP had a budget assessment of \$1,604,197 plus a rollover amount from FY13 of \$250,757 and a supplemental budget of of \$100,000, a combined total of \$1,954,954. Payroll expenditure was \$837,860. Chargebacks from Group Insurance was \$151,000. Retirement potion was \$157,500. Insecticides purchased was \$161,000. Auto, liability, airplane insurance totalled \$40,000. The Project purchased new state vehicles, sprayers, larger trailer (transport excavator), mini excavator with trailer which totaled \$185,000. The balance was expended on rent for Project facility, rent for Project aircraft hangar (also maintenance on aircraft), utilities, office supplies, miscellaneous shop supplies, repairs and maintenace on state vehicles, heavy equipment, fuel for vehicles and airplane, lab equipment, etc..

List each member municipality along with the corresponding (cherry sheet) funding assessment dollar amount for the prior fiscal year.

**Comments:** 

Abington: 33,090 Bridewater: 61,024 Brockton: 107,887 Carver: 57.988 Cohasset: 35,703 Duxbury: 66,773

East Bridgewater: 38,199

Halifax: 28,875 Hanover: 45,713 Hanson: 31,289 Hingham: 85,862

Hull: 25,401

Kingston: 42,386 Lakeville: 52,691 Marion: 35,540 Marshfield: 83,182 Mattapoisett: 36,836 Middleboro: 110,478

Norwell: 50,062 Pembroke: 52,319 Plymouth: 216,250
Plympton: 22,332
Rochester: 50,095
Rockland: 32,691
Scituate: 64,142
Wareham: 82,993

West Bridgewater: 30,434

Whitman: 23,962

# **PESTICIDE USAGE**

Please total your pesticide usage with information from your Mass. Pesticide Use Report, WNV Larvicide Use records and contracted pesticide applications. Applications methods include; hand/backpack, aerial, ULV, mistblower, other (please explain)

Product Name: Altosid pellets/Altosid pellets wsp EPA Reg. #: 2724-448
Application method: Hand
Targeted life stage: Larvae
Total amount of concentrate applied: 899 lbs
Comments: \_\_\_\_\_
Product Name: Duet

EPA Reg. #: 1021-1795-8329 Application method: ULV Targeted life stage: Adult

Total amount of concentrate applied: 525 gals

Comments:

Product Name: Altosid XR briquets

EPA Reg. #: 2724-421 Application method: hand Targeted life stage: Larvae

Total amount of concentrate applied: 2 1/4 lbs

Comments:

Product Name: Summit b.t.i. briquets

EPA Reg. #: 6218-47 Application method: hand Targeted life stage: Larvae

Total amount of concentrate applied: 49 lbs

Comments: \_\_\_\_\_

Product Name: 4 Star briquets

EPA Reg. #: 83362-3 Application method: hand Targeted life stage: Larvae Total amount of concentrate applied: 8 Comments:	1lbs
Product Name: Vectobac 12AS EPA Reg. #: 73049-38 Application method: Hydraulic sprayer/ Targeted life stage: Larvae Total amount of concentrate applied: 1, Comments:	
Product Name: Vectobac 12AS EPA Reg. #: 73049-38 Application method: Aircraft/ Hydraulic Targeted life stage: Larvae Total amount of concentrate applied: 1 Comments:	
Product Name: VectoLex CG EPA Reg. #: 73049-20 Application method: Aerial/hand Targeted life stage: Larvae Total amount of concentrate applied: 1 Comments:	, 066 lbs
Product Name: 4 Star WSP EPA Reg. #: 85685-3 Application method: hand	

# LARGE AREA EXCLUSIONS

Total amount of concentrate applied: 32 lbs

Targeted life stage: Larvae

Comments:

Do you have large areas of pesticide exclusion, such as estimated or priority habitats? Yes

If yes, please explain, and attach maps or a web link if possible. Protected Critical Habitat( http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/layerlist.html ) and many wetlands protected by Mass. Audubon Assoc. and other not for profit environmental organizations..

#### **SPECIAL PROJECTS**

Do you perform any inspectional services such as inspections at sewage treatment facilities or review sub division plans? No

If yes, please elaborate

Do you work with DPW departments or other local or state officials to address stormwater systems, clogged culverts or other areas that you have identified as manmade mosquito problem areas? Yes

If yes, please elaborate: We continue to work with local DPW on water management programs

Have you worked with these departments on long term solutions? No

If yes, please elaborate:

Did you conduct or participate in any cooperative research or restoration projects?

If yes, please elaborate: We participated in two research projects. The first project was with the CT Agricultural Expierment Station in New Haven Ct. This project involves genetic testing of Culiseta melanura. The second project was with Bristol County Mosquito Control Project and Valent BioScience Corperation. The research project looked at ways to improve larviciding efficacy.

Did you or participate on any **State/Regional/National workgroups or panels or attend any meeting pertaining to the above?** 

If yes, please elaborate:

#### **CHILDREN AND FAMILIES PROTECTION ACT**

Is your program impacted by the Children and Families Protection Act? Yes

If yes, please explain: All public school districts within the Project membership, except one, have included mosquito control in their IPM plans and have fully complied with the requirements of the Act

If you have data on compliance with this Act and your program, please list here:

If you had difficulties with implementation of your program due to this law, please elaborate here: No difficulties, however each year districts need to be briefly reminded about the process. When the schools have new staff, they tend to need a more detailed explanation of the process. All are eager to fully comply.

Comm	ents:
Comm	ents:
NPD	ES SECTION
Did yo	ur program note any adverse incidents during this reporting period? No
If yes	olease list any corrective actions here:
GEN	IERAL COMMENTS
	e list any comments not covered in this report:
ricase	ist any comments not covered in this report.